Testing and Training Partnering: Industry & Community Perspective

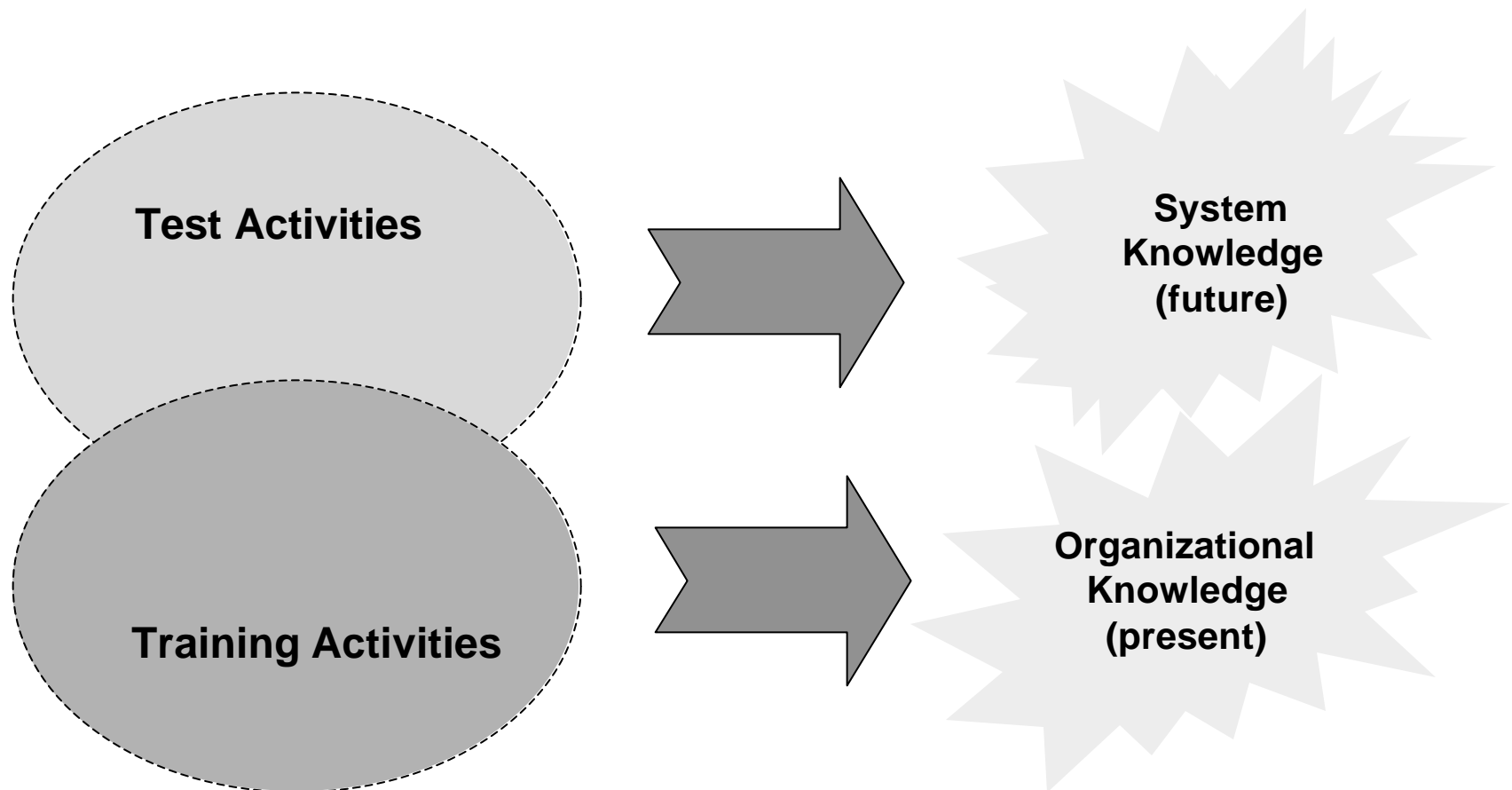## Dr. Cyrus J. Staniec,
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Background Perspective

- Dedicated to development of government, industry, academic partnership
    - Defense Testing (DT, OT, LFT)
    - Training

- Community Objectives:
    - More cost effective testing and training
    - Improved cooperation and coordination

Individual Testing and Training Objectives

Test Activities → **System Knowledge (future)**

Training Activities → **Organizational Knowledge (present)**

Opportunities for Progress

- Toward more cost effective testing and training
  - Government for funded application
    - Industry for technological innovation
  - Government for requirements and utilization
    - Industry for methodological development

- Toward improved cooperation and coordination
  - Government as enabler for cooperation
    - Industry as integrator among programs/activities
  - Government for requirements and access to infrastructure
    - Industry as developer of collaborative process

Example: Technological innovation
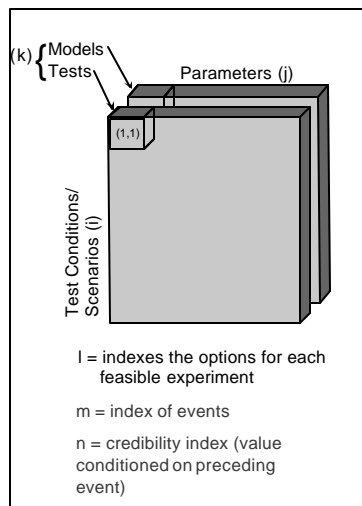## VPG, Experimentation applications for Visualization

Example: Methodological development
Test/Training Planning Needs spawn Decision Aid Concepts

Integrating M&S and T&E Processes Unclassified

Extended Optimization Model Descriptions

E = Experiment: feasible test or M&S choice

a_j = importance of each parameter

b_{ijkmn} = **Credibility value of alternative n for means k applied to event m in cell ij**

E_{ijklmn} = **choice of means k, option l for event m in cell ij, having credibility alternative n**

B_{ijklmn} = **Benefit of means k, option l for event m in cell ij**

C_{ijklm} = **Cost of executing option l if means k in event m for cell ij**

r_{ijklmn} = **number of repetitions included in option l of means k for event m in cell ij**

l = indexes the options for each feasible experiment

m = index of events

n = credibility index (value conditioned on preceding event)

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•Planning for least Cost/High credibility results supports JE goals.
•Logicon is leading developments in this area.

•OT evaluators must integrate M&S with field T&E to plan for High Credibility Results.
•Budgets must be met
•Attributes of M&S must be considered.

Integrating M&S and T&E Processes Unclassified

Extended Optimization Model Formulation

Equation	Explanation
OBJECTIVE: $\text{MAX} \sum_j a_j \sum_{iklmn} b_{ijklmn} B_{ijklmn} E_{ijklmn}$	**Maximize credible benefit of testing**
(S.T.) $\sum C_{ijklmn} E_{ijklmn} \le \text{BUDGET}_m$	**Remaining within budget for each test event**
$\sum C_{ijklmn} E_{ijklmn} \le \text{BUDGET}$	**Remaining within budget for the program life**
$\sum_l E_{ijklm} \le 1 \ \forall_{ijklmn}$	**Choose no more than one option per means per cell**
$\sum_{kln} E_{ijklm} \ge 1 \ \forall_{ijm}$	**Choose at least one option per means per cell**
$E_{ijklmn} \ge E_{ijkl(m+1)n} \ \forall_{ijklm}$	**A conditioned value for credibility may be chosen only if its conditioning means is chosen in the prior event**

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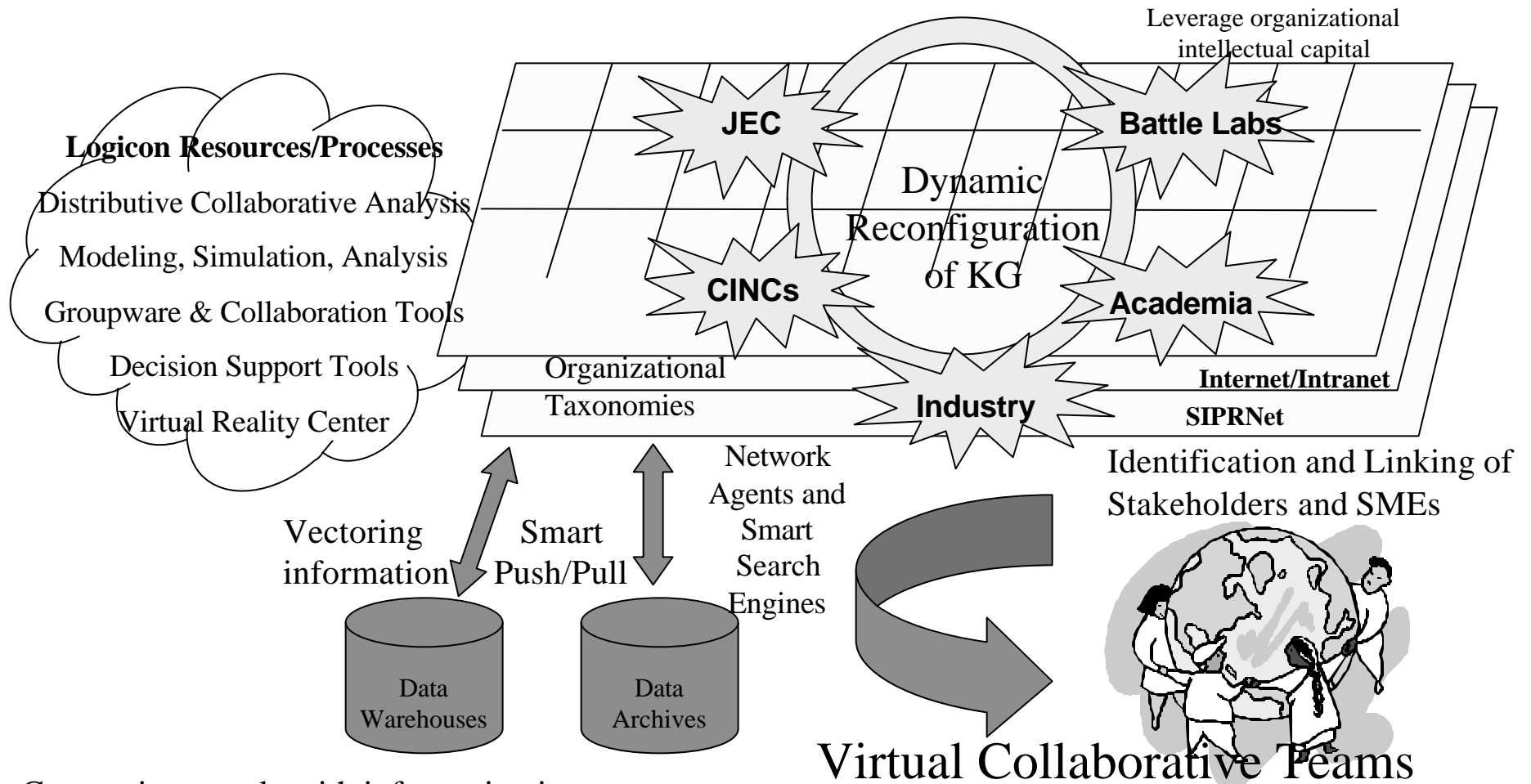Unclassified   16

Example: Integrator among programs/activities

- Multiple Logicon points of support
  - BCTP
  - OPTEC T&E support
  - DTRA Testing programs
  - C2TIG/JEFX support
  - ASCIET
  - AWEs
- Government-encouraged cross-fertilization can leverage individual program knowledge

Example: Developer of collaborative process

Leverage organizational intellectual capital

JEC

Battle Labs

Dynamic Reconfiguration of KG

Logicon Resources/Processes

Distributive Collaborative Analysis

Modeling, Simulation, Analysis

Groupware & Collaboration Tools

Decision Support Tools

Virtual Reality Center

CINCs

Academia

Organizational Taxonomies

Industry

Internet/Intranet

SIPRNet

Network Agents and Smart Search Engines

Vectoring information

Smart Push/Pull

Data Warehouses

Data Archives

Identification and Linking of Stakeholders and SMEs

Virtual Collaborative Teams

Connecting people with information in a collaborative computing environment

Connecting people with people of like expertise or interests

Summary

- **Industry has plenty to contribute**

- **IR&D provides the mechanism for contribution**
  - Must be return on investment

- **Government must be "in the lead"**

- **Collaborative environment is a "multiplier"**